5.3 From J. Maxwell
Feb. 1867

PROCEEDINGS

OF THE

Board of Marine Inspectors,

OF THE ASSOCIATION OF

LAKE UNDERWRITERS,

Held at Buffalo, August, 1856.

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BUFFALO:
MURRAY & BAKER, BOOK AND JOB PRINTERS, 200 MAIN STREET.

1856.

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MARINE INSPECTORS.

Capt. B. F. DAVISON,	Chicago, Ill.
" JAMES PORTER,	Milwaukee, Wis.
" GEORGE W. WOLVERTON,	Detroit, Mich.
" CHARLES A. GARDNER,	Toledo, Ohio.
" B. A. STANARD,	Cleveland, Ohio.
" WM. C. DAVISON,	Buffalo, N. Y.
" ROBERT THOMAS,	Port Colborne, C. W.
" ALEX. STANLEY,	St. Catharines, C. W.
" GEO. EGGLESTON,	Oswego, N. Y.
" ALEX. DAVIDSON,	Coteau Land'g, C. E.

E. P. DORR,
J. N. GARDNER,
R. C. BRISTOL, } Executive Committee.

D. P. DOBBINS, Secretary.

PROCEEDINGS

OF THE

Board of Marine Inspectors

OF THE

ASSOCIATION OF LAKE UNDERWRITERS,

Held at Buffalo, August, 1856.

In accordance with a resolution adopted at the Convention of Lake Underwriters, held at Buffalo, in January, 1856,

PRESENT,

Capt. E. S. STONE,	Inspector	Milwaukee.
" B. F. DAVISON,	"	Chicago.
" W. H. BARSE,	"	Detroit.
" C. HERRICK,	"	Toledo.
" B. A. STANARD,	"	Cleveland.
" W. C. DAVISON,	"	Buffalo.
" R. THOMAS,	"	Pt. Colborne, C.W.
" A. STANLEY	"	St. Catharines, C.W.
" G. EGGLESTON,	"	Oswego.
" A. DAVIDSON,	"	Coteau Land'g. C. E.

Capt. E. P. DORR,
J. N. GARDNER, } Members Executive Committee.

Capt. D. P. DOBBINS, Secretary Association.

W. C. DAVISON was called to the Chair.

D. P. DOBBINS acting as Secretary.

The following Rules, Specifications* and Suggestions, relative to the Construction, Classification and Navigation of Sail Vessels and Propellers on the Lakes, were unanimously adopted:

RULES, &c.

Relative to the Construction of Sail Vessels and Propellers to Class A 1.

All the timber used must be of good quality, and free from sap and other defects.

FRAMES.

The parts of each frame must be either bolted or treenailed together, and the laps in vessels of 200 tons and upwards, shall not be less than two feet, six inches, and joints well fitted. Each frame to be secured to the keel by two bolts, one through the floor and keel, the other through the keelson floor and keel.

SISTER KEELSONS, BILGE STRAKES.

Vessels above 150 tons to have Sister Keelsons, well bolted, and all vessels to have Bilge Strakes; the collective breadth of the latter to be equal to one-eighth the vessel's beam, and every Strake must have one through bolt, and one blunt bolt. exclusive of spikes, in each frame. Vessels of 300 tons and upwards, must have their Bilge Strakes properly edge bolted.

TRANSOM.

The main transom to have a knee at each end to connect it with the side of the vessel.

BREAST HOOKS.

There must be one breast-hook for every four feet of the depth of hold, and to have at least three through bolts in each arm.

GARBOARD STRAKES.

The garboard strake to exceed in thickness that of the bottom plank, one-half, and to be well bolted to the keel and floor timbers.

ARCHES.

Vessels of 250 tons and upwards must either be arched or have *thick ceiling*, edge bolted, with a bolt between every frame from bilge strakes to deck clamps; the breadth of the arch to be equal to one-fourth of the depth of hold. Each strake of the arch must have one through bolt and one blunt bolt in every frame, exclusive of sufficient spikes.

CLAMPS.

The collective breadth of deck clamps to be equal to one-fifth of the depth of hold. In every clamp strake of seven inches in breadth there shall be one through bolt; above seven, two thro' bolts; above fourteen, three through bolts; and above twenty-one inches, four through bolts in every frame, exclusive of spikes, to be driven from the outside, and clenched on a ring or washer. The joints in clamp strakes to be scarfed, and the length of scarf must not be less than four times the breadth of the strake so scarfed

CEILING.

Ceiling to be square fastened with spikes, for every foot in breadth; and in the *thick ceiling* there must be a through bolt at every foot from bilge strake to clamp in each alternate frame. The ceiling, either in the bottom or sides, may be diminished in thickness towards the ends of the vessel.

OUTSIDE PLANK.

In all vessels the bottom plank, ten inches wide and under, to be square fastened with spikes; and over ten inches to be fastened in proportion; but the plank on the side, under eight inches wide, to be square fastened, and above that width to be fastened in proportion.

In the planking and ceiling, no butts to be nearer than five feet of each other, unless there is a strake wrought between them, and then a distance of four feet will be allowed, and no butts to be on the same timber, unless there be two streaks between them.

BUTT BOLTS.

Vessels of 200 tons and upwards, must be butt bolted with a bolt through the next timber to the butt, and clenched.

BEAM FASTENINGS.

The deck frame may be either with or without carlins. When with carlins, it must be secured to the side by two lodging knees and one diagonal or hanging knee at each end of every beam. When without carlins, there must be one lodging knee and one diagonal or hanging knee to the end of every beam. Vessels not exceeding 200 registered tons, are exempted from using diagonal or hanging knees, provided they have instead, thereof, a heavy shelf-piece, or stringer, well fastened with a clench bolt through every frame, and also well bolted to the beams. Chocks between beams as a substitute for knees, are not admissable in vessels classing A, 1.

KNEES.

The siding of knees to be three-fourths the thickness of the beam they secure, and to have a bolt at every ten inches; the bolts in the arms must be through bolts.

CENTER BOARD.

The head ledges to center-board cases, in vessels of 300 tons register, shall not be less than 7 × 10 inches; the center-board six inches thick; the plank for the case not less than six inches thick, secured with edge bolts of one inch iron, not more than two feet apart, each bolt to pass to the center of third strake of each bolting; the ends of the plank to be secured with ¾ bolts, eight inches apart, driven through and clenched on each side, and to have not less than four stay rods on each side of case, of 1¼ inch iron, running through the deck beams and bottom of vessel, and set up with screw. The first and second bolting of sides of case to pass through the keel and pocket piece and clenched. The head ledges to be secured by four one inch bolts at the lower ends, passing through the pocket piece and keel, and one through the keelson and clenched, the upper ends to be securely fastened to the beams. The keelson, along side the pocket piece, to be 7 × 16 inches, and to extend sixteen feet forward and abaft the case, and be secured with four three-quarter bolts in each frame, and one seven-eight bolt between the frames into pocket piece. All vessels, under or over 300 tons, shall have their center boxes built in proper proportion to the above rule.

DEAD RISE OF SAIL VESSELS.

One and a quarter inches to the foot dead rise, at one-third the breadth of beam from centre of the keel, shall be considered sufficient for A, 1 vessels, without bilge pumps and limbers. But, if provided with good bilge pumps and limbers, one inch to the foot shall be deemed sufficient. Vessels with less dead rise than one inch to the foot as above measured, shall not be entitled under any circumstances, to Class A, 1.

CHAIN PLATES.

Vessels of 300 tons shall have chain plates 3 × ⅝ inches, flat iron, or two parts of 1 inch, round iron, secured to the hull, with 1¼ inch bolts and backers, eight inches long, secured with 1 inch bolts, and larger or smaller vessels in proportion.

MAST STEPS.

Mast steps are best fitted across the keelson, but however fitted they must be well and securely bolted; and the mast partners must be double kneed.

LIMBERS.

In vessels of 300 tons, limbers to be 1¾ by 3½ inches—in larger or smaller vessels to be in proportion—and limber chains to be provided in all steamers and propellers; and the Board would recommend their general adoption in sailing vessels.

COVERING BOARD.

The joints in the covering board and rail to be scarfed, the length of scarf not to be less than four times the breadth.

PUMPS.

All vessels to have at least two good pumps, exclusive of bilge pumps; pumps to be cased, and in those whose bulk-head forward does not come down to the skin, one pump must be cased not less than three by two feet, to receive the suction-pipe of steam pump in case of accident.

SALTING.

All vessels hereafter built, and otherwise entitled to be classed A 1, must be salted, and the stops shall not be less from the covering board than one-fifth of the depth of the hold.

WATER-TIGHT BULKHEADS, &c.

All vessels entitled to class A, 1, shall be provided with a water-tight forecastle bulkhead, from ceiling to deck, built in a staunch and reliable manner, with gates or slides to the limbers immediately under it, and so constructed that they may be easily opened and shut. It is strongly urged on masters and owners of vessels carrying grain in bulk, to use good and sufficient *shifting boards*, it being the opinion of this Board, that without them, a vessel is not really seaworthy. It is desirable to have chocks on the keel between the floor timbers, with a limber cut through them to prevent the voilent washing of the water from side to side.

It is also the opinion of this Board of Inspectors that steam vessels, navigating the lakes, should be fitted with sufficient sails to control them in case of accident to the engine. They would also suggest that better means be taken to secure the hatchways and other openings in the decks of steam vessels, and more especially of propellers, as it is believed that many of the serious disasters occurring, are in consequence of some of the above named deficiencies, and from being overloaded.

CLASSIFICATION OF LAKE VESSELS.

There shall be three Classes—A, B and C—with two grades to each class, namely: A 1, A 2, B 1, B 2, C 1, C 2.

Vessels hereafter built in accordance with the Rules of the Association, shall be entitled to Class A 1 five years. At the expiration of which time, if sound, and in good order, she shall class A 2 three years, B 1 two years, B 2 two years, and then into Class C.

New vessels, classing A 2, shall be entitled to remain in that grade five years, B 1 three years, B 2 two years, and then into Class C. At any time, however, vessels are liable to be surveyed, and if from any cause whatever, such as stranding, collision, dry rot, or deficiences in materials, &c., a vessel be found unworthy to remain in her class, the Inspector for the District shall place her in the grade to which she is entitled.

But if the damage or deficiencies be promptly made good to the satisfaction of the Inspector, the vessel shall remain in her class, until in due course of time she lapses from it.

New vessels that are not qualified to class so high as A 2, shall be classed in the grade to which it is deemed by the Inspector they are entitled.

Vessels already built shall have the benefit of the foregoing

Rules according to their merits—time to be reckoned from the date of launching.

Vessels rebuilt, or having received extensive repairs, shall have the benefit thereof by their grade being continued or raised; but in no case shall any vessel be continued in the A 1 grade longer than five years, or be raised to that grade after that age.

Vessels built superior to the Rules of the Association, shall be entitled to a *star* on the Register, in addition to the A 1 Class—thus, *A 1.

Vessels built of iron, if of proper thickness and strength, well fastened, and divided into three or more water tight compartments, shall be entitled to class A 1, ten years; A 2, six years; B 1, four years; B 2, four years, and then into class C. Subject always to the same exceptions and rules as govern the classification of sail vessels and propellers constructed of wood.

(SEE TABLES ANNEXED.)

MEMORANDUM.

(Extracts from Rules of the Association.)

LAKE INSURANCE.

HULL RATES FOR SAIL VESSELS.

FOR THE SEASON.	A 1.	A2.	B 1.	B 2.	C 1.	C 2.
Less than 200 tons,	6 per cent.	6½ per c.	7 per c.	8½ per c.	10 per c.	11 per c.
From 200 to 300 "	7 per cent.	7½ per c.	8 per c.	9 per c.	11 per c.	12 per c.
From 300 to 400 "	8 per cent.	8½ per c.	9 per c.	10 per c.	12 per c.	15 per c.
Upwards of 400 "	8½ per ct.	9 per c.	10 per c.	12 per c.	15 per c.	20 per c.

For the year add ½ per cent. to the above rates.

Vessels in the lumber trade on the east shore and ports of Lake Michigan (Grand Traverse Bay excepted,) and east shore of Lake Huron to pay 2 per cent. additional.

Lumber vessels loading off the west shore of Lake Michigan (Green Bay excepted,) and west shore of Lake Huron to pay 1 per cent. additional.

HULL RATES FOR STEAM VESSELS.

FOR THE SEASON.	A.	B.	C.
Less than 400 tons,	8 per cent.	9 per cent-	15 per cept.
Over 400 and less than 600 tons,	9 per cent.	10 per cent.	17 per cept.
Over 600 tons,	10 per cent.	11 per cent.	20 per cent.

For the year add 1 per cent. to above rates.

For passenger and Mail Steamers and first class Propellers, navigating Lake Ontario only, to Ogdensburgh, deduct 10 per cent. from above rates.

SHORT RATES TO NOVEMBER 30th.

April having expired deduct from above rates	10 par cent.
May having expired deduct from above rates	20 per cent.
June having expired deduct from above rates	25 per cent.
July having expired deduct from above rates	30 per cent.
Aug. having expired deduct from above rates	35 per cent,
Sept. having expired deduct from above rates	45 per cent.
Oct. having expired deduct from above rates	55 per cent.

Sailing season from April 1st, noon, to November 30th, noon, on Lakes Michigan, Huron, St. Clair, Erie, Ontario and River St. Lawrence to Montreal.

Hull risks on Lake Superior to terminate November 20th.

The maximum proportion of Insurance on Hulls, shall be *two-thirds* of the valuation on vessels valued at $5,000 and under, *three-fourths* on vessels valued over $5,000 and less than $12,000; and *four-fifths* on vessels valued at $12,000 and over.

Rates of particular average on Vessels classed A 1 and 2,	Not less than 5 per ct.
Rates of particular average on Vessels classed B 1 and 2,	Not less than 7 per ct.
Rates of particular average on Vessels classed C 1 and 2,	Not less than 10 per ct.

PRODUCE CARGO RATES.

Shipped on A 1 Vessels	deduct 5 per cent. from standard rates.
Shipped on A 2 Vessels	charge standard rate.
Shipped on B 1 Vessels	charge same rate.
Shipped on B 2 Vessels	add 5 per cent to standard rate.
Shipped on C 1 Vessels	add 10 per cent to standard rate.

Fire Insurance for the winter on yearly Hull Policies, covers the equipments on board the vessel only—if removed, an additional premium to be charged thereon.

No vessel shall load with Rail Road Iron, Pig Metal, Stone, Ores or Marble, wholly, beyond her registered or American Custom House tonnage measurement, but if half, or less than half of her tonnage be laden with above articles, her lading shall not exceed her tonnage more than twenty per cent., or, if Canadian measurement, fifty per cent.

UNITED STATES CUSTOM HOUSE

RULE FOR MEASURING & CALCULATING

TONNAGE OF SINGLE DECKED VESSELS.

MEASUREMENT.

Length, from forward side of stem, to after side of stern post, on deck.

Breadth of beam, at outside of plank in the widest part of vessel.

Depth of hold, from ceiling alongside the main keelson, to under side of deck plank.

RULE FOR CALCULATING.

Deduct ⅗ of breadth of beam from the length, multiply that product by the breadth of beam and that by the depth of hold, and divide by 95.

Canadian measurement on our common *Sail* Vessels on the Lakes, is about ⅓ less than the American measurement.

Description of Timber and Plank allowed to be used in various parts of Lake Sail Vessels and Propellers to class A 1.

FLOOR TIMBERS,	White Oak, Rock Elm, Black Birch.
TOP TIMBERS,	White Oak, or Chestnut, Tamarack, Red Ceder, alternately with White Oak.
TRANSOM AND KNIGHT HEADS,	White Oak.
KEEL,	White Oak, Hickory, Rock Elm, Black Birch, Beech, Hard Maple.
STEM, STERN POST, KEELSON, CENTER BOARD CASE,	White Oak.
BEAMS,	W. Oak, Chestnut, Tamarack, Red Pine, Yellow Pine.
BREAST HOOKS AND KNEES,	White Oak, Tamarac, Pine.
PLANK FROM KEEL TO LIGHT WATER MARK,	W. Oak, Beech, Rock Elm, Black Birch.
PLANK FROM LIGHT WATER MARK TO GUNWALE AND COVERING BOARD	White Oak.
CEILING FROM KEELSON TO BILGE STRAKES,	White Oak, Tamarac.
BILGE STRAKES, CLAMPS, SHELF PIECE,	White Oak.
CEILING FROM BILGE STRAKES TO CLAMP,	W. Oak, Tamarac, Red Pine, Yellow Pine.

A Table of minimum dimensions of Timber to be used in building Sail Vessels and Propellers, to class A 1.

TONNAGE,	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
KEEL SIDED,	8	9	10	11	11½	12	12½	13	13½	14	14¼	14¼	14½	14½	14½	14¾	14¾	15	15	15½
KEEL MOULDED,	6	7	8	8½	9	9½	9¾	10¼	10¾	11¼	11½	11½	11¾	11¾	11¾	12	12	12½	12¾	12¾
STEM AND STERN POST,	8	9	9½	10	10½	11	11½	12	12½	13	13½	13½	13½	14	14	14	14	14½	14½	14½
FLOORS SIDED,	7	8	9	9	10	10½	11	11	11½	11½	12	12	12½	12½	13	13	13½	13½	14	14
FRAMES MOULDED AT CENTER,	9	9½	10	10½	11	12	12¼	12½	12¾	13	13¼	13½	13¾	14	14¼	14½	14¾	14¾	15¼	15½
FRAMES MOULDED AT BILGE,	7	7½	8	8½	9	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11½	11¾	11¾	11¾	12	12
FRAMES MOULDED AT HEAD,	4	5	5	5½	5½	6	6	6¼	6¼	6½	6½	6¾	6¾	7	7	7¼	7¼	7½	7½	7½
DISTANCE BETWEEN CENTERS,	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
MAIN KEELSON, SIDED AND MOULDED	9	10	11	12	13¼	13	13½	14	14½	15	15¼	15½	15½	15½	15¾	15¾	15¾	16	16	16
SISTER KEELSONS, SIDED & MOULDED.				9	9	10	10	10½	10½	11	11	11	11	11½	11½	11½	11½	12	12	12
MAIN TRANSOM SIDED,	9	11	12	13	14	15	15	16	16	17	17	17	18	18	18	19	19	19	20	20
MAIN TRANSOM MOULDED,	7	9	10	10	11	11	12	12	13	13	13	14	14	14	15	15	15	16	16	16
BEAMS, SIDED,	8	9	9	10	10	10	11	11	11	11	12	12	12	12	13	13	13	13	14	14
BEAMS MOULDED AT CENTER,	5	6	6	7	7	7	8	8	8	9	9	9	9	10	10	10	11	11	11	11
Space between Beams without Carlin,	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Space between Beams with Carlin,	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
SCARFS OF KEEL IN FEET & INCHES,	4.	4.3	4.6	4.9	5.	5.3	5.6	5.9	6.	6.3	6.6	6.9	7.	7.3	7.6	7.9	8.	8.3	8.6	8.9
SCARFS OF KEELSON IN FT. & INCH,	4.6	4.9	5.	5.3	5.6	5.9	6.	6.3	6.6	6.9	7.	7.3	7.6	7.9	8.	8.3	8.6	8.9	9.	9.3

A Table of the minimum thickness of the outside Plank of Sail Vessels & Prop. to Class A 1.

TONNAGE	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
FROM KEEL TO BILGE	2	2	2½	2½	2½	3	3	3	3	3½	3½	3½	3½	3½	4	4	4	4	4	4
FROM BILGE UP THE SIDE,	2½	2½	3	3	3	3½	3½	3½	3½	4	4	4	4	4	4½	4½	4½	4½	4½	4½
COVERING BOARD AND RAIL,	3	3	3	4	4	4	5	5	5	5	5	5	5	5	6	6	6	6	6	6
DECK,	2	2	2½	2½	3	3	3	3	3	3	3	3	3	3½	3½	3½	3½	3½	3½	3½
BREADTH OF WATERWAY WHEN USED,	9	10	10	11	11	12	12	13	13	14	14	15	15	15	16	16	16	17	17	17
THICKNESS OF WATERWAY,	5	5	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8
COVERING BOARD WHERE WATERWAY IS USED,	2	2	2	2½	2½	2½	3	3	3	3	3	3	3	3	4	4	4	4	4	4

A Table of the minimum thickness of the Inside Plank of Sail Vessels and Propellers, to class A 1.

TONNAGE,	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
CEILING FROM KEELSON TO BILGE,	2	2	2	2	2½	2½	2½	2¼	2½	3	3	3	3	3	3½	3½	3½	3½	3½	3½
BILGE STRAKES,	2½	3	4½	4	4	5	5	5	5	5	5	6	6	6	6	7	7	7	7	7
CEILING FROM BILGE TO CLAMP,	2	2	2½	2½	2½	3	3	3	3	3	3½	3½	3½	3½	3½	3½	4	4	4	4
DECK CLAMPS,	2½	3	3	3	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6
Ceiling from Bilge to Clamp when no Arch is used,	2½	2½	3	3	3½	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6
THICKNESS OF ARCHES					3	3	3	3	3	3	8	3¾	3¾	3½	3¾	3¾	4	4	4	4
BREADTH OF SHELF PIECE	10	11	11	12	12	13	13	14	14	15	16	16	16	16	17	17	17	18	18	18
THICKNESS OF SHELFPIECE,	4	4	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7

A Table of minimum sizes of Bolts to be used in fastening Sail Vessels and Propellers to class A 1.

TONNAGE	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
DEADWOOD, STEMSON, KEELSON, &c	¾	¾	⅞	⅞	1	1	1	1⅛	1⅛	1⅛	1⅛	1⅛	1¼	1¼	1¼	1¼	1¼	1⅜	1⅜	1⅜
SCARFS OF KEEL, POINTERS, RIDERS, &c	⅝	½	⅝	⅝	¾	¾	¾	¾	¾	¾	¾	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞
TRANSOM, THROATS OF HOOKS,	⅝	¾	¾	¾	⅞	⅞	⅞	1	1	1	1	1	1⅛	1⅛	1⅛	1⅛	1⅛	1¼	1¼	1¼
CLAMPS, KNEES, BEAMS,	⅝	⅝	⅝	⅝	¾	¾	¾	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	1	1	1	1	1
WATERWAY, SHELF-PIECE, STRINGER,	⅝	⅝	¾	¾	¾	¾	⅞	⅞	⅞	⅞	⅞	⅞	⅞	1	1	1	1	1	1	1
BILGE STRAKES,	½	½	⅝	⅝	⅝	¾	¾	¾	¾	¾	¾	⅞	⅞	⅞	⅞	⅞	⅞	⅞	¾	⅞
BUTT BOLTS,				⅝	⅝	⅝	⅝	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾
NUMBER OF BOLTS IN SCARFS OF KEEL,	5	5	5	6	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9

The length of spikes must be double the thickness of the plank they fasten, and one inch added. All THROUGH bolts must be driven from the outside, and clenched on the inside.

A Table of minimum sizes of Chains and weight of Anchors, adapted to the tonnage of Lake Sail Vessels.

TONNAGE,	10	20	30	40	60	80	100	120	140	170	200	250	300	350	400
BEST BOWER CHAIN,	3-8	7-16	1-2	9-16	5-8	11-16	3-4	13-16	7-8	15-16	1	1 1-16	1 1-8	1 3-16	1 1-4
BEST BOWER ANCHOR,	90	112	168	224	336	392	532	616	700	784	952	1176	1400	1456	1680
SMALL BOWER CHAIN			5-16	3-8	7-16	1-2	9-16	5-8	11-16	3-4	13-16	7-8	15-16	1	1 1-16
SMALL BOWER ANCHOR,			80	90	112	168	224	336	392	532	616	700	784	952	1176
HAWSER								4 1-2	4 3-4	5	5 1-4	5 1-2	5 3-4	6	6 1-4
KEDGE ANCHOR								100	125	150	175	200	225	250	275

TONNAGE,	450	500	550	600	650	700	760	800	900	1000	1100	1200
BEST BOWER CHAIN,	1 5-16	1 5-16	1 3-8	1 3-8	1 7-16	1 7-16	1 1-2	1 1-2	1 9-16	1 5-8	1 11-16	1 3-4
BEST BOWER ANCHOR,	1904	1904	2072	2072	2240	2240	2352	2352	2800	3360	3920	4200
SMALL BOWER CHAIN,	1 1-16	1 1-8	1 1-8	1 3-16	1 3-16	1 1-4	1 1-4	1 5-16	1 3-8	1 7-16	1 1-2	1 9-16
SMALL BOWER ANCHOR,	1176	1400	1400	1456	1456	1680	1680	1904	2072	2240	2352	2800
HAWSER,	6 1-4	6 1-2	6 1-2	6 3-4	6 3-4	7	7	7 1-4	7 1-4	7 1-2	7 1-2	7 1-2
HEDGE ANCHOR,	300	325	350	375	400	425	450	475	475	500	500	525

Length of each Chain to be 75 fathoms; length of Hawser to be 60 fathoms.

Steam Boats and Propellers above 200 tons, employed on the Lakes, may have Chains 2-16 smaller than Sail Vessels, and Anhors in proportion.

Steamboats and Propellers above 200 tons, employed wholly on the Rivers, may have Chains 4-16 smaller than Sailing Vessels, and anchors in proportion.

D. P. DOBBINS, Secretary.